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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,141	04/02/2004	John L. Stoffel	200400537-1	1498

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EXAMINER

CORDRAY, DENNIS R

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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06/23/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/817,141	Applicant(s) STOFFEL ET AL.	
	Examiner DENNIS CORDRAY	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 49-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 49-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 4/8/2008 have been fully considered but they are not persuasive. All previous claims have been cancelled. The arguments merely state that the features of the newly presented claims are not taught by the prior art of record. The rejections and indicated allowable matter presented herein represent the Examiners response to the arguments.

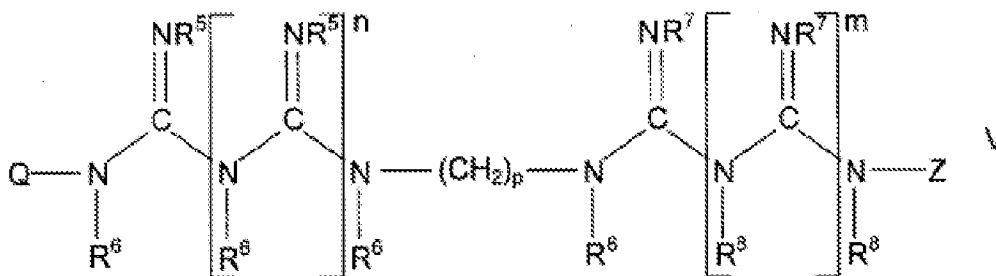
Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 49-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 49 and 54 recite a guanidine polymer compound having the structure V



but fail to recite values for superscripts "m" and "n", thus making the claim indefinite.

While similar parameters are accorded values of an integer from 1 to 4 for the preceding structure IV, other parameters having similar designations, Q and Z, have different

meanings for each of the two structures. One of ordinary skill in the art would therefore not find it obvious to assign the identical values to the superscripts for each structure. The instant Specification (p 11, par 40) also fails to teach values for the same structure. For the purpose of this examination, “m” and “n” are assumed to be integers from 1 to 4.

Claims 50-53 depend from and thus inherit the indefiniteness of Claim 49.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cousin et al (4554181) in view of Nigam (US 2003/0219539 A1) and Nigam (6197880), which is incorporated by reference into Nigam '539.

Cousin et al discloses an ink jet recording sheet (print medium or printing paper) having a surface that includes a combination of a water-soluble polyvalent metal salt and a cationic polymer (Abs). The substrate can be a paper, synthetic paper or plastic film formed using any commercially available pulp (col 6, lines 12-13 and 29-41), thus has a fibrous substrate. The salts include Al^{3+} , Mg^{2+} and Ca^{2+} salts combined with acid ions. Although not the preferred ions, chlorides and nitrates are disclosed as usable (col 5, lines 46-53 and 62-64), thus calcium chloride, aluminum chloride, magnesium chloride and calcium nitrate are disclosed. A suitable commercially available cationic polymer is a guanidine-formaldehyde polymer (col 5, lines 15-18). Cousin et al teaches that the polyvalent metal salt rapidly dissolves an ink drop that strikes the surface of the

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paper while the cationic polymer insolubilizes the dye in the ink to the paper (col 2, lines 58-60; col 3, lines 6-15). The cationic polymer forms a network of polymeric bridges between the substrate and the dye (binds the dye to the substrate) and tends to improve water fastness and reduce feathering, thus images of improved density, water fastness and sharpness are achieved (col 3, lines 27-36).

Examples are given of papers made comprising the cationic polymer and metal salt (cols 10-13, Examples 1-7).

Cousin et al discloses a method for making paper (print media) wherein the cationic polymer and metal salt are applied by coating an aqueous composition on a formed sheet capable of sustaining its own weight by spraying or immersing (col 6, lines 14-16). Cousin et al does not explicitly disclose that the guanidine compound and metallic salt are disposed within the fibrous component of the substrate. Because paper is a porous substrate, the aqueous coating penetrates into the surface to some extent, or at least it would have been obvious to one of ordinary skill in the art to expect the coating to penetrate into the surface, thus the cationic polymer and metal salt are disposed within at least part of the fibrous component of the substrate.

The salt is used in an amount from about 10 to 1000 parts per 100 parts cationic polymer. The salt and cationic polymer are applied to the substrate in amounts from approximately 0.1 to 15 GSM per side (col 6, lines 4-11). The disclosed amounts overlay the claimed ranges.

Cousin et al does not disclose cationic guanidines having monomer units described by structural formulae III to VIII.

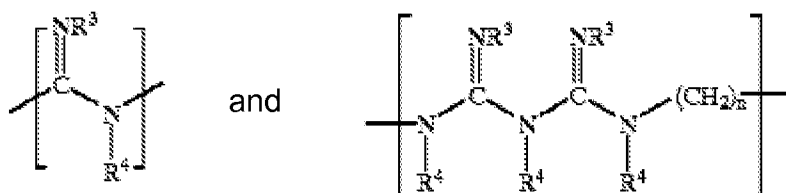
Nigam '539 discloses a fibrous substrate for printing (print medium including printing paper, writing paper, drawing paper, copier paper, business card stock, electrophotographic paper, gift boxes, cartons, etc.) treated with a guanidine polymer as a dye fixing agent (Abstract; p 2, pars 11-23; p 3, par 31-36; p 13, par 213; p 14, pars 222-226). The guanidine polymer binds colorants to the substrate, creating a high quality bleed resistant and water resistant image (p 2, par 24). In some embodiments, the guanidine polymer is a guanidine oligomer (from 2 to 8 monomeric units) or a mixture of oligomer and polymer (greater than 8 monomeric units) (p 3, pars 34-36 and 39; p 4, par 60). The guanidine polymer is applied as a coating to the paper by any conventional process, such as dip coating, reverse roll coating, extrusion coating, saturation coating, etc. (p 13, pars 211 and 214). In one embodiment, the coating applied so that it does not penetrate far beyond the surface (p 13, par 212), thus the coating will penetrate into the paper beyond the surface at least to some extent and be disposed within the fibrous component of the substrate or, at least, such penetration would have been obvious to one of ordinary skill in the art.

The claimed structures III and IV are disclosed [pp 6-7, pars 109-117 and 121-122, structures (I) and (II)], claimed structure V is disclosed [pp 7-8, pars 123-127, structure (II)a], claimed structure VI is disclosed [pp 7-8, pars 109-114, structure (II) where R is a C₁-C₁₂ straight or branched chain alkyl, alkenyl, alkynyl or alkanoyl group (having -O-) and 1 to 12 of the carbons may be replaced by amino, carboxy or

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sulfhydryl]. Other suitable guanidine structures include those disclosed in Nigam '880, which is incorporated by reference, or polymers having similar structures (p 5, par 61).

Nigam '880 discloses guanidine monomeric structures of the form



(col 9, line 50 to col 10, line 14).

The art of Cousin et al, Nigam ('539 and '880) and the instant invention is analogous as pertaining to printing papers treated with guanidine polymers. The claimed structure VIII would have been readily envisaged by one of ordinary skill in the art as having similar structures to those explicitly disclosed by Nigam ('539 and '880). The guanidine polymers disclosed by Cousin et al and Nigam ('539 and '880) provide the same properties of fixing dyes and imparting water fastness to a paper. Since the guanidine polymers of Cousin et al and Nigam ('539 and '880) are used for the same purpose, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the claimed guanidine polymers having monomeric units described by structural formulae III to VI and VIII to treat the paper of Cousin et al in view of Nigam ('539 and '880) as a functionally equivalent option to provide bleed-resistant and water-fast images. Alternatively, it would have been obvious to include the polyvalent metal salts disclosed by Cousin et al into the coatings of Nigam ('539) to provide rapid dissolution of an ink drop that strikes the surface of the paper and insolubilization of the

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dye in the ink to the paper to provide images of improved density, water fastness and sharpness as taught by Cousin et al.

Allowable Subject Matter

Claim 54 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: the prior art teaches coating a guanidine polymer and polyvalent metal salt onto a paper, but not introducing and mixing the materials with the fibrous component prior to forming the paper. Cousin et al teaches that the polyvalent metal salts and guanidine polymers cannot be added in the wet end of the papermaking process or their effectiveness is compromised. None of the prior art teaches or suggests both internal sizing and external coating using the guanidine polymer. One of ordinary skill in the art would not have been motivated to combine both processes in view of the warning by Cousin et al.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/
Examiner, Art Unit 1791

/Eric Hug/
Primary Examiner, Art Unit 1791